CH-1 of 27 MAR 1998
CH-2 of 20 AUG 1999

CNETINST 11010.8
N443
27 Mar 1995

CNET INSTRUCTION 11010.8

Subj: BASIC FACILITY REQUIREMENTS (BFRS) FOR NAVAL EDUCATION AND TRAINING COMMAND ACTIVITIES

Ref: (a) NAVFAC P-80
(b) NAVFACINST 11010.44E

Encl: (1) Guidance for Development of Naval Education and Training Activity BFRs

1. Purpose. To set forth the specific method to be used in the development of Basic Facility Requirements (BFRs) for Category Codes 171-10 and 171-20 training facilities at Naval Education and Training Command (NAVEDTRACOM) activities and to provide amplifying guidance in the use of that method in the development of requirements for certain other category codes.

2. Cancellation. CNTECHTRAINST 11010.4B, CNTECHTRA Report 11010-2

3. Background. The BFR is the primary basis for justifying a military construction (MILCON) requirement. It identifies in detail the space requirements to support your training mission and student loading. It is intended to represent gross requirements and is totally independent of existing facilities. Updating of a BFR which has been allowed to become several years out-of-date is a major undertaking. For purposes of efficiency, the BFR needs to be maintained up-to-date in order to readily determine whether or not additional facilities are required to accomplish any new or increased tasking. Reference (a), which contains Navy construction criteria, contains several methods of developing the classroom portion of both academic and applied instruction space requirements. The method based on the average number of students onboard is to be used at NAVEDTRACOM activities. Reference (b) describes the Shore Facilities Planning and Programming System used to identify facility construction and alteration requirements.

4. Action. Addressees shall update their BFRs and facility planning documents as required to support MILCON and special project requirements and submit to Naval Facilities (NAVFAC) Engineering Field Divisions (EFDs) for certification and approval.

Appropriate summary data shall be included on each military construction project DD-1391 which shall be prepared and submitted in accordance with reference (a). Revisions involving Category Codes 171-10 and 171-20 shall use the average-on-board (AOB) method of computing classroom requirements. Enclosure (1) is provided as amplifying guidance for development of training space requirements and requirements for certain other category codes.

/s/P.E. Tobin
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Vice CNET

Distribution (CNETINST 5218.2):
Lists I (1, 3, 4), II (2, 5, 6, 12, 18, 25, 32, 35, 37, 38), III (1-5), V (1), VI (1, 3), VII (1, 3, 4, 5)

GUIDANCE FOR DEVELOPMENT OF NAVAL EDUCATION AND TRAINING ACTIVITY BFRs

A. Introduction

1. BFR is the title given to the listing of facility quantities required to perform the assigned mission of a shore activity. These facility quantities are listed by category code in the Shore Facilities Planning System database. It is not the purpose of this listing to reflect existing conditions, but instead to reflect gross requirements for each included category code. These requirements are based on the current mission, base loading, and accepted facility planning factor criteria. The backup or justification data for the BFR should include a detailed listing of base loading information, any assumptions, and all computations and data on which computations are based. It should also include sketches of those space requirements that are not derived by computations (i.e., hands-on laboratory space).

2. The initial efforts in developing or revising a BFR should be concentrated on collecting basic data, documents, and instructions. Next, develop a list of facility category codes that will constitute the completed BFR. Before proceeding with the BFR, the developer should become familiar with the calculation requirements for each included category code. This is done to ensure that all required data are available and that all calculations are developed from the same database. Reference (a) is the primary source of facility planning factor criteria and BFR calculation requirements. This publication contains several methods for calculating requirements for Category Codes 171-10 and 171-20. One of these is the AOB method which is the method for use at NAVEDTRACOM activities. Therefore, additional guidance is given in these instructions with the intent of providing a simple and logical method of developing requirements in the Category Code 171 series using the AOB method.

B. Step-by-step instructions

1. Step I - Instructions, documents, and data to be collected:

a. NAVFACENGCOM Instructions and Publications as follows:

(1) NAVFACINST 11010.44E - Shore Facilities Planning Manual.

(2) NAVFAC P-72 - Department of the Navy Facility Category Codes.

(3) NAVFAC P-78 - Navy Facility Assets Data Base Procedures Manual.

(4) NAVFAC P-80 - Facility Planning Factor Criteria for Navy and Marine Corps Shore Installations.

b. A copy of the current Facility Planning Document (FPD) for each required facility category code.

c. Organization chart with detailed staff structure.

d. Complete base loading data, including supported units, if applicable, and vehicles/aircraft allowances, if personnel loading projections should reflect staff billets and planned AOB student numbers. Staff billet projections should be obtained from approved OPNAV 1000/2 Manpower Allocations, and student AOB projections should be computed from the annual student inputs as described below. In cases involving supported units, develop a concise description of what support will be provided based on the Host-Tenant Agreement, and include supported unit personnel in the calculation of appropriate support facility requirements.

e. From the Master Course Reference File (MCRF) of the Navy Integrated Training Resources and Administration System (NITRAS) or other authoritative source, list the following data for courses of instruction conducted by the activity.

(1) Course number. Use either the Course Data Processing (CDP) code or the Course Identification Number (CIN) for each course.

(2) Course short title.

(3) Length of course, in numbers of actual training days (i.e., 5 classroom days per week).

(4) The total number of students to be trained per annum as listed in an appropriate outyear portion of the MCRF. The annual throughput number should be either the requirement number or the plan number, as appropriate, but not the annual capacity number.

(5) Determine type of classroom required (i.e., general academic at 22 Net Square Feet (NSF)/Person(s) (PN) or modified at 30 NSF/PN or modified academic with full-size office desk at 45 NSF/PN).

(6) Determine type of laboratory hands-on training space required and whether or not such space can be utilized by more than one course. Spaces reserved for only one course should be kept to an absolute minimum.

2. Step II - Develop a list of category codes for facilities that would be required to accomplish the mission and functions assigned to the activity. This list should include only those category codes that require BFR approval, as indicated in NAVFAC P-72.

3. Step III - Review reference (a) for each category code listed in Step II to determine the specific data required to calculate requirements for each facility type. The personnel loading or other database is then broken down into all of the required categories, as specified by reference (a) for calculating the various category codes. This will ensure that all calculations are made using a single database and will avoid problems in double use of personnel in certain categories (such as providing space for school administrative personnel in both the 171 series and the 610 series category codes).

4. Step IV - Calculation of Category 171-10, Academic Instruction Facility and Category Code 171-20, Applied Instruction Facility requirements.

a. General

(1) Academic instruction space (Code 171-10) is composed of training support space and lecture and/or modified classroom space, while applied instruction space includes these same type spaces plus laboratory or hands-on training space. Therefore, if an activity has an applied instruction mission, it is recommended that any Code 171-10 requirement be included under Code 171-20 since the classroom space in these two category codes is identical and is interchangeable and should be used to the maximum extent to satisfy a requirement regardless of its classification. Use of only Code 171-20 eliminates the problem of matching existing classroom assets with the BFR when recording facilities in the Navy Facility Assets Data Base (NFADB) or the plant account records.

b. Calculation of Support Space

(1) Training administration (not activity administration), use criteria found under Code 610-10 in reference (a), but include requirement in 171 classification. At small activities where activity administrative personnel also perform training administrative functions, all administrative space requirements can be included in the 171 classification, thus eliminating category Code 610-10 altogether.

(a) Department Directors - Allow 150 NSF per department.

(b) Division Directors - Allow 120-130 NSF per division.

(c) Other training Administrative Personnel - Allow 60 to 110 NSF per person based on their duties and job requirements. In general, 90 NSF per person would satisfy most job requirements.

(d) Central File Area - Allow 6 NSF per letter file cabinet and 7 NSF per legal file cabinet for central file areas. Space for individual files is included in the individual space allowances.

(e) Conference Room - Care should be taken to keep the number and size of conference rooms to the minimum consistent with the need. This would usually mean one conference room per department, if the departments are large enough to support this need. Reference (a) allows the following:

CONFEREES	NET AREA
8 PN	150 NSF
Up to 14 PN	375 NSF
Up to 24 PN	500 NSF

(2) Instructor's Work Space - Reference (a) provides an allowance of 60 NSF per instructor. From base loading data and detailed staff information, determine number of instructors in various departments. List these on the calculation sheets and multiply the total number of instructors by 60 NSF per instructor, and enter the total NSF. At some activities, the instructors are officer personnel who perform other additional duties. In such cases, the allowance should be based on the criteria in reference (a) under Code 610-10 rather than the 60 NSF/PN.

(3) Instructor Lounge - In general, one lounge is allowed per building. Based on reference (a) guidance, it is assumed that a fixed allowance of 450 NSF will provide a lounge for a group of 60 to 70 instructors. This allowance should be reduced for smaller groups.

(4) Student Break Area - Reference (a) criteria provides an allowance of 6 NSF for each student scheduled for a class break at the same time. Assume that one-fourth to two-thirds of the student load will be on break at one time. Multiply student load by the assumed percentage and then by 6 NSF per student.

(5) Technical Library - Reference (a) provides the following criteria under Category Code 171 series.

(a) Reading Area - Number of students actually needing a library X 20 percent X 25 NSF/student equals reading area requirements in NSF.

(b) Stack Area - Number of volumes X 6.6 NSF/100 volumes equals stack area requirement in NSF.

(c) Library Staff Area - Sum of reading area plus stack area X 10 percent equals library staff area requirements in NSF.

(6) Training Aid Storage - Reference (a) allows 1.5 NSF per student station. This provides storage area in the training building to store training aids and minor training support materials. For activity ready issue/shop stores/miscellaneous material storage, see Category Code 171-177 Training Material Storage.

(7) Audiovisual Support - If space is required to house audiovisual equipment used in processing magnetic tapes, making slide programs or making viewgraphs, determine the space required for both the equipment and the working area around the equipment. Enter the space required along with an explanation of the functions to be performed.

(8) Training Aids Fabrication and Maintenance Shop - If space is required to fabricate and maintain training aids, the amount of space required should be determined and justified on the same basis as audiovisual support space above.

(9) Locker/Shower Facilities - Determine number of persons requiring locker/shower facilities, and use an allowance of 11.5 NSF per person for this requirement.

(10) Add up all support space requirements and enter as a subtotal.

c. Calculation of Classroom Space

(1) Calculate the NSF of classroom space required using the format and formula as follows:

CIN OR CDP	COURSE SHORT TITLE	DURATION DAYS	ANNUAL INPUT	NSF AOB	PER STUDENT	CLASSROOM REQUIREMENT

(Enter appropriate data under these headings.)

Where:

CIN = Course Instruction Number

CDP = Course Data Processing Code

COURSE SHORT TITLE = Abbreviated Course Title

DURATION DAYS = Actual Classroom Days (i.e., 5 days per week)

ANNUAL INPUT = Number of Students Trained Annually

AOB = Average-on-Board Number of Students

NSF PER STUDENT = Net Square Feet Allowance Per Student

CLASSROOM REQUIREMENT = Area of Requirement in Net Square Feet.

Formula:

$$\text{AOB} = \frac{\text{DURATION DAYS X ANNUAL INPUT}}{\text{250 Classroom Days Per Year}}$$

(**Note**: Round all fractions to next higher whole number.)

CLASSROOM REQUIREMENT = AOB X NSF PER STUDENT X 1.5*

* 1.5 is a utilization factor which is required to compensate for both lack of continuous scheduling and lack of full use of classroom capacity when class size is smaller than standard or available classroom.

(2) The final BFR should include the appropriate data in the specified format, along with explanatory footnotes.

(3) At large activities, calculations may be subdivided to reflect requirements by individual departments or other activity segments. When this is done, all calculations for each type space (i.e., support, classroom and hands-on space) shall be grouped together and appropriately subdivided by activity segments. In other words, the BFR computations would start with all support space requirements, subdivided as desired; followed by all classroom requirements, subdivided as desired; followed finally by a list of all hands-on space requirements, subdivided as desired. It is not the intent to develop totally separate requirements for each department, but only to subdivide certain portions of all the overall requirements for ease of updating.

d. Calculation of Hands-on Space

(1) Determine the hands-on or laboratory net space requirements using simple single-line sketches as shown in Appendix A of this instruction. These sketches should be drawn to an approximate scale to fit a letter-size sheet and should include explanatory information as to the requirement for the space, the equipment/furnishings included, the courses of instruction supported, the net area required, a descriptive title of the requirement, and a drawing number. These sketches should be presented in a logical order, and a list of them, with a drawing number and the net area required for each, should be included in the calculations.

(2) The sketches are numbered 20-1, 20-2, 20-3, etc., to indicate a series of Category Code 171-20 requirements. At large activities, an additional number segment could be included to identify the cognizant activity department. For example, various activity departments or other activity segments could be assigned an alphabet character. Then the drawing number sequence for the first activity segment would be 20A1, 20A2, 20A3, etc., while the drawing number sequence for the second activity segment would be 20B1, 20B2, 20B3, etc. In this way, each department or activity segment would have its own sequence of drawings.

e. Summary of Applied Instruction Space Requirement

(1) List the support space, the classroom space and the hands-on training space net areas calculated above. Add the net areas and multiply the total net area by a net-to-gross factor of 1.33.

(2) The "Summary of Requirement" should be placed at the beginning of the computations for applied instruction space (see example in Appendix A). The gross area of the requirement should also be marked on the Facility Planning Document for Category Code 171-20.

5. Step V - Calculation of Category Code 171-25 Auditorium Requirements

a. See reference (a) for planning factor criteria and limitation on allowance.

b. When this facility is part of the multi-purpose building and the net area factor is used, be sure that the auditorium net area is converted to gross area along with the rest of the building requirements.

6. Step VI - Calculation of Category Code 171-35 Operational Trainer Facility Requirements

a. Facilities in this category code, house large operational trainers which usually duplicate or simulate all or part of a weapon system or other operational equipment. Determine the operational trainer facility net space requirement using single-line sketches as shown in Appendix A. These sketches should be drawn to an appropriate scale to fit a letter-size sheet and should include explanatory information as to the requirement for the space, a layout of the device or the equipments which constitute the trainer, the courses of instruction supported, the net area required, a descriptive title of the requirement, and a drawing number.

b. These sketches should be numbered 35-1, 35-1, 35-3, etc., to indicate a series of Category Code 171-35 requirements. At activities with a large number of operational trainers, the list can be arranged and subdivided to identify the cognizant activity department. This could be done in the same manner suggested for Category Code 171-20 hands-on training space drawings.

c. These sketches should be presented in a logical order and a list of them with a drawing number, title, and the net area required for each should be included in the calculations. The sum of all net area requirements for Category Code 171-35 should be obtained and converted to gross area using a net-to-gross factor of 1.33.

7. Step VII - Calculation of Category Code 171-77, Training Material Storage

a. Reference (a) indicates that storage facilities for miscellaneous goods or equipment related to training facility support will be provided only where it can be individually justified. It also indicates that there are no criteria for this type facility and refers to Category Code 440 series for general information on storage parameters.

b. In view of the foregoing, the allowance contained in Appendix A has been developed to assist in the computation of this requirement. It should be noted that these computations do not provide space for storage of training support vehicles. If vehicular storage space is required, it should be justified using gross area allowance contained in reference (a), Table 440D-1.

c. An alternate method would be to determine by survey the actual cubic feet (CF) of various materials to be stored. Provide a list of these materials along with the CF quantity of each. The sum of these quantities or the total CF of material to be stored is then entered into the following formula, which was developed from data in Section 440 of reference (a).

$$\frac{\text{TOTAL CF} \times 1.96 \text{ TCF} \times 2.38 \text{ GSF}}{\text{Average Stack Height in Feet}} = \text{Gross SF Storage Requirement}$$

Where:

TOTAL CF = Total Cubic Feet of Material to be stored

1.96 TCF = Total Cubic Feet of Space allowed for each Cubic Foot of Material

2.38 GSF = Net Area to gross area multiplier (reference (a), Table 440B-3)

8. Step VIII - Calculations of all other Category Code Requirements

a. Refer to reference (a) for specific directions under each category code. It should be noted that the requirements for some category codes are computed in GSF, and others are computed in NSF and are converted to GSF using a net-to-gross conversion factor. Also, the conversion factor may differ with various category codes. If no conversion factor is given, then 1.33 is the best factor to use with any requirement that is normally satisfied with a building containing rooms and passageways.

b. The net-to-gross conversion factor provides space in a building for passageways and stairways exterior to the training area, toilet facilities, building mechanical equipment and distribution systems, and the area occupied by walls and partitions.

9. Step IX - When all computations are completed, the finished BFR should be arranged in accordance with the following outline:

a. Provide a copy of the command's mission and function directive issued by the Immediate Superior in Command.

b. Provide an organization chart which includes the billet structure.

c. Provide a BFR Summary Sheet listing all included category codes in numerical order with the title and gross area requirement for each.

d. Provide the computation sheets for each included category code along with any backup data and/or drawings. Computation sheets and backup data should be arranged in groups for each category code. These groups should be arranged in numerical order of the category code.

e. Provide a complete set of Shore Facilities Planning System, Facility Planning Documents (FPDs). These should be arranged in numerical order of category codes and should be marked to reflect the new requirement.

10. The computations and backup data for Category Codes 171-10 and 171-20 shall be arranged in the order presented in paragraph 4 of Step IV. At Naval Training Centers, Great Lakes and
CH-2 at Naval Air Stations, Pensacola and Meridian, training facility requirements shall be totally segregated by tenant/subordinate commands and then summarized as requirements of the host. The format for computations and backup data for each tenant/subordinate command shall be the same as for other individual activities.

APPENDIX A

SAMPLE BASE FACILITY REQUIREMENTS

CH-2

NAVAL AIR TECHNICAL TRAINING CENTER

ANYWHERE, USA

UIC: 12345

BASIC FACILITY REQUIREMENTS

Host Activity:
Naval Air Station
Anywhere, USA 98765-4321

BASIC FACILITY REQUIREMENTS

SUMMARY SHEET

	CATEGORY CODE	DESCRIPTION	REQUIREMENT
I	171-20	APPLIED INSTRUCTION FACILITY	109,900 GSF
II	171-35	OPERATIONAL TRAINER FACILITY	238,500 GSF
III	171-77	TRAINING MATERIAL STORAGE	13,600 GSF
IV	211-05	MAINTENANCE HANGAR - OH	10,290 GSF
V	610-10	ADMINISTRATIVE OFFICE	4,950 GSF
VI	610-77	ADMINISTRATIVE STORAGE	250 GSF

BASIC FACILITY REQUIREMENTS

NAVAL AIR TECHNICAL TRAINING CENTER, ANYWHERE

I. CATEGORY CODE 171-20 APPLIED INSTRUCTION FACILITIES

1. TOTAL REQUIREMENT: 110,100 GSF.

2. SUMMARY OF REQUIREMENT:

a. Support Space 21,429 NSF
b. Classroom Space 20,142 NSF
c. Hands-on/Laboratory Space 41,245 NSF
d. Total Net Area 82,816 NSF
e. Total Gross Requirement (net Area X 1.33) 110,145 GSF
f. Total Gross Requirement Rounded 110,100 GSF

3. BASE LOADING - PERSONNEL:

ASSIGNMENT CATEGORY	OFF	ENL	CIV	TOTAL
NATTC				
TRAINING SUPPORT	9	96	10	115
INSTRUCTOR	0	85	0	85
SUBTOTAL	9	181	10	200
MATSG				
TRAINING SUPPORT	2	12	0	14
INSTRUCTOR	2	10	0	10
SUBTOTAL	2	22	0	24
STUDENTS	8	396	0	404
GRAND TOTAL	**19**	**599**	**10**	**628**

4. SUPPORT SPACE REQUIREMENT - This type space provides facilities for all training support functions, such as: training administration, instructor preparation, training aids support, student break, library, etc. A detailed list of support space requirements with computations is as follows:

a. Offices

Director of Training	1 PN x 150 NSF	150 NSF
Department Directors	3 PN x 150 NSF	450 NSF
Division Directors	8 PN x 125 NSF	1,000 NSF
Other Support Personnel	68 PN x 90 NSF	6,120 NSF
Central Files Area	20 Files x 7 NSF	140 NSF
Conference Room	Up to 24 PN	50 NSF
Instructor Work Space		
AB School	63 PN x 60 NSF	3,780 NSF
MALRE Courses	5 PN x 60 NSF	300 NSF
PR School	27 PN x 60 NSF	1,630 NSF
		14,060 NSF

b. Instructors' Lounge - Reference (a) criteria provide a fixed allowance of 450 NSF for an instructor lounge. Since the fixed allowance will support from 60-70 instructors, a double allowance is provided: 2 each x 450 NSF = 900 NSF

c. Student Break Area - Reference (a) criteria provides an allowance of 6 NSF for each student scheduled for a class break at the same time. Using approximately 50% of the average student load, the requirement is calculated as follows: 200 PN X 6 NSF = 1,200 NSF.

d. Audiovisual Studio - Space is required to house audiovisual equipment used in processing magnetic tape and making slide programs for classroom instruction for both AB and PR Schools. Based on equipment size and needed working space, the requirement is 1,200 NSF.

e. Electronic Maintenance Shop - Space is required in which to maintain electrical and electronic training devices. Based on the equipment size, the requirement is 800 NSF.

f. Training Aids Fabrication and Maintenance Shop - Space is required for a carpentry and light metal working shop in which to fabricate and repair non-electronic training aids. Based on equipment size, the requirement is 1,200 NSF.

g. Technical Library - Approximately 50% of the students require the use of a technical library.

(1) Reading Area 400 PN x 50% x 20% x 25 NSF	= 1,000 NSF
(2) Stack Area 5000 vols. x 6.6 NSF/100 vols.	= 330 NSF
(3) Staff Area 1330 NSF x 10%	= 133 NSF
	1,463 NSF

h. Training Aids Storage - Reference (a) allows 1.5 NSF/Student to store training aids, such as movie projectors, viewgraph projectors and portable screens (404 PN x 1.5 NSF = 606 NSF).

i. Total Support Space Requirement - 21,429 NSF.

5. CLASSROOM SPACE REQUIREMENT - Included in this space requirement are lecture classrooms, modified classrooms, and learning centers. This space is justified on the basis of the AOB student load and student stations required for each course of instruction. The AOB student load for each course is the course length multiplied by the annual input divided by the number of training days per year. The requirement equals the AOB load multiplied by both a utilization factor and the appropriate allowance for the particular kind of student station needed. The utilization factor accounts not only for lack of continuous course scheduling, but also for empty seats that occur when the convened class size is not as large as the available classroom. Based on experience throughout the training command, a utilization factor of 1.5 (67% utilization) is required to compensate for both of these features. Also, once a course is in session and a classroom is vacated for a short period while students move to a laboratory to receive hands-on training, it is not practical to schedule another course into that classroom for these short periods; therefore, the full course duration is used in all classroom calculations even though separate hands-on training space may be involved. The classroom requirement is calculated as follows:

CDP	COURSE SHORT TITLE	DURATION DAYS	ANNUAL INPUT	AOB	NSF PER STUDENT	CLASSROOM REQUIREMENT
6280	AVFUN ABE	5	400	8	22	264 NSF
6281	AVFUN ABH	5	300	6	22	198
6282	AVFUN ABF	5	325	7	22	231
6513	ABE A1	33	416	55	22	1,815
6527	ABH A1	18	375	27	22	891
6512	ABF A1	20	300	24	22	792
532R	EAF A1	30	140	17	22	561
9112	ALRE "O"	14	40	3	45	203
9113	ALREM "O"	34	5	1	45	68
3533	ALRE C7/C11	44	150	27	22	891
3802	ALRE C13	44	110	20	22	660
3534	AVFUELS C1	24	50	5	22	165
9121	AVFUELS CZ	11	20	1	22	33
3803	CV CAT EL	10	18	1	22	33
469E	OGSL WOLM	10	60	3	22	99

CDP	COURSE SHORT TITLE	DURATION DAYS	ANNUAL INPUT	AOB	NSF PER STUDENT	CLASSROOM REQUIREMENT
3606	OLSM	30	36	6	22	165
6284	AVFUN PR	5	700	14	45	945
6519	PR BASIC	45	700	126	45	8,505
4509	PR ADVANCED	63	169	43	45	2,903
7764	NP I	15	130	8	45	540
7765	NP II	15	20	2	45	135
7766	NP III	15	10	1	45	45
			TOTAL	**404**	**(PN)**	**20,142 NSF**

Where:

CDP = Course Data Processing Code or other Course Identification Number

DURATION DAYS = Length of Course in Actual Classroom Days (i.e., 5 days per week)

AOB = Average-on-Board Number of Students

AOB computation = $\frac{\text{DURATION DAYS X ANNUAL INPUT}}{\text{250 (classroom days per year)}}$

REQUIREMENT = AOB X 1.5 Utilization Factor X NSF/Students

NSF/Student = Net Square Feet per Student

6. HANDS-ON TRAINING SPACE REQUIREMENT - The hands-on portion of applied training space requirements is based on equipment or workbench size and floor area needed for efficient and safe operations. A sketch for each hands-on training area, showing layout and relative size of required equipment is included as justification for this type space.

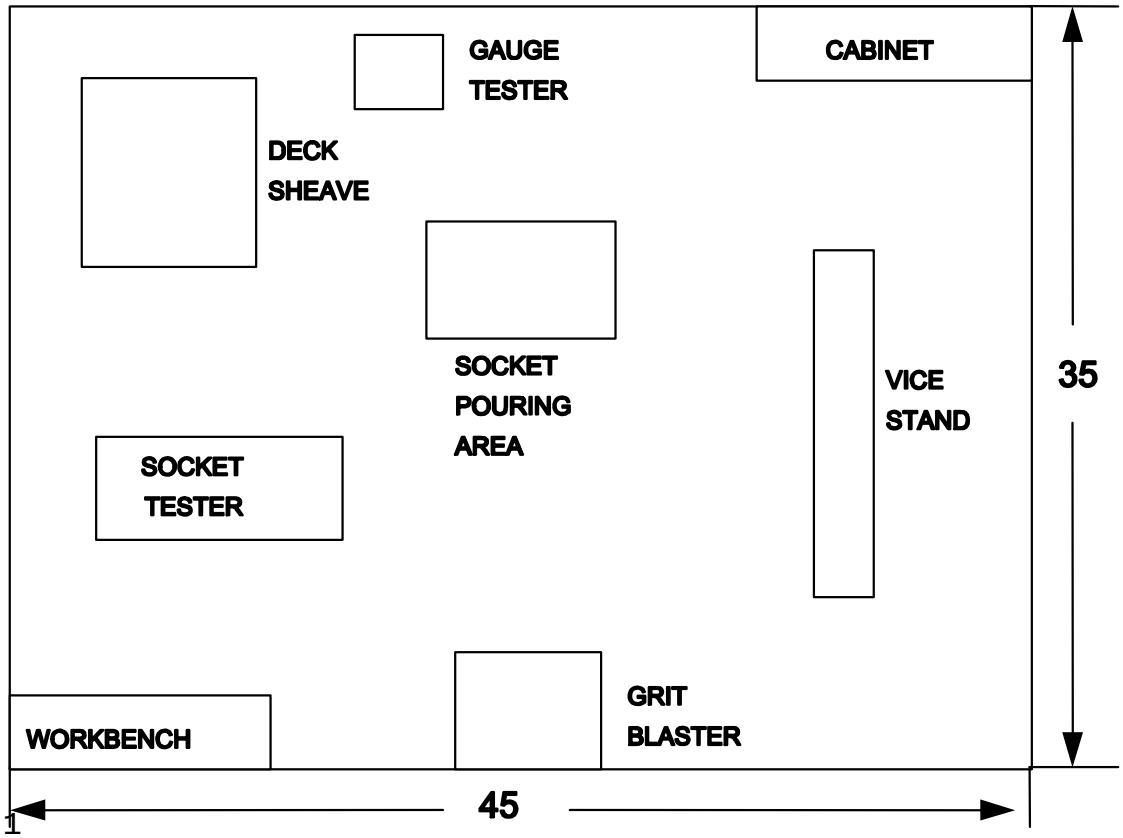
DWG NO.	TITLE	NET AREA REQUIREMENT
20-1	AVIATION FUNDAMENTALS WORKSHOP	1,500 NSF
20-2	SOCKET POURING WORKSHOP - ABE	1,575 NSF
20-3	JP-5 PUMP ROOM - ABF	4,050 NSF
20-4	AFB FUELS LABORATORY	1,375 NSF
20-5	AVFUELS PUMP & EQUIPMENT ROOM	2,700 NSF
20-6	FIRE FIGHTING SUPPORT FACILITY	2,015 NSF
20-7	ABE SUPPORT EQUIPMENT WORKSHOP	1,050 NSF
20-8	ABH SUPPORT EQUIPMENT WORKSHOP	1,050 NSF
20-9	ABF SUPPORT EQUIPMENT WORKSHOP	900 NSF
20-10	MALRE MAINTENANCE WORKSHOP	900 NSF
20-11	PACKING & RIGGING WORKSHOP	13,650 NSF
20-12	OXYGEN MASK LABORATORY	700 NSF
20-13	INFLATABLE SURVIVAL II	3,220 NSF
20-14	BASIC SEWING ROOM	2,640 NSF
20-15	LIQUID OXYGEN LABORATORY	1,080 NSF
20-16	OXYGEN TEST STAND & REGULATOR	1,440 NSF
20-17	ADVANCED SEWING MACHINE ROOM	1,440 NSF
	TOTAL HANDS-ON SPACE	**41,245 NSF**

GRAPHIC JUSTIFICATION

171-20 APPLIED INSTRUCTION: Space is required for workbench-type training to instruct students in maintenance/repair of arresting gear components. Students are taught to pour cable sockets, test cables/gauges and perform preventive maintenance gear deck sheaves. The space requirement for these functions is 1,575 NSF.

The following courses use this training room:

ALRE C7/C11
ALRE C13
ABE A1
ALREM



DRAWING NUMBER 20-2
SOCKET POURING WORKSHOP - ABE
TOTAL AREA: 1,575 NSF

Enclosure (1)

II. CATEGORY CODE 171-35 OPERATIONAL TRAINER FACILITY

1. TOTAL REQUIREMENT: 238,500 GSF.

2. DISCUSSION: Training facilities are required to house various operational trainers. Most of the operations covered by these trainers are normally both outdoor and indoor functions; however, when these functions are performed outdoors in a regular operational situation, they are performed by skilled and experienced personnel, and their purpose is to perfect their performance under any and all conditions. On the other hand, when teaching basic skills to "A" school students, an environment free from harsh weather conditions is required for maximum training efficiency. This required environment can be obtained either by locating the training site in a region with a mild climate or by locating the training indoors. NATTC has many facilities which were built for functions that have now been discontinued. Therefore, since adequate facilities already exist, locating these functions indoors is the most advantageous way of obtaining the required environment. Also, an indoor aircraft handling facility with walls to stay clear of provides realistic training for the student who will later have to handle aircraft indoors in close quarters below the flight deck of an aircraft carrier.

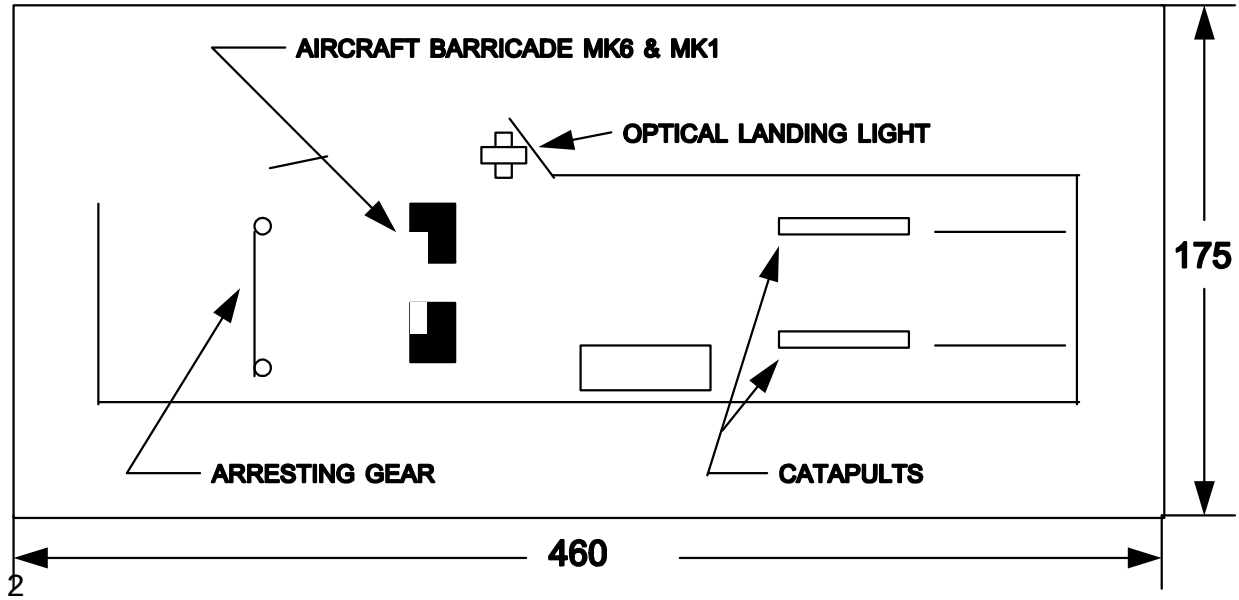
3. CALCULATION OF REQUIREMENT: The requirement for operational trainer space is supported by a schematic drawing of each trainer. Each drawing shows details of the required space and the instructional courses for which the space will be used. The requirement and supporting drawings are summarized as follows:

DWG NO.	DESCRIPTION AREA	AREA
35-1	TRAINING AIDS PLATFORM (TAP)	80,500 NSF
35-2	SHORE BASE ARRESTING GEAR TRAINER	6,500 NSF
35-3	AIRCRAFT HANDLING TRAINER	90,000 NSF
35-4	PARACHUTE OPERATIONS TRAINER	2,300 NSF
	TOTAL NET AREA	179,300 NSF
	NET-TO-GROSS FACTOR	X 1.33
	TOTAL REQUIREMENT	238,469 GSF
	TOTAL REQUIREMENT ROUNDED	**238,500 GSF**

GRAPHIC JUSTIFICATION

171-35 OPERATIONAL TRAINER: The Training Aids Platform (TAP) is a two-level operational trainer simulating an aircraft carrier deck at 1/3 scale, complete with (full scale) Launch and Recovery Eqiupment/Machinery/Controls. Physical dimensions of the trainer are 400' x 95' at the widest part. Allowing 30' on both ends and the starboard side for circulation and small vehicles, and 50' on the port side for crane operation and TAP-related training exercises, the total TAP requirement is 80,500 NSF. Equipment contained in TAP is used in the AB School for training and consists of the following apparatus:

1 TC-7/11 Catapult; 1 TC-13 Catapult; 2 Water Brake Assemblies; Retraction Engine Maintenance Area; Catapult training aides including 3 launch valves; 1 MK 7 MOD 1 Arresting gear; 1 MK 7 MOD 2; 1 MK 7 MOD 3; 2 Sheave Dampers; 1 Barricade Power Pack; Shipboard Arresting Gear training aids; Aircraft Fuel Pump Station Trainer; Optical Landing; LSE Platform; PRI-FL4 and FLT/DK Control Stations for flight operations training.



DRAWING NUMBER 35-1
TRAINING AIDS PLATFORM - TAP
TOTAL AREA: 80,500 NSF

III. CATEGORY CODE 171-77 TRAINING MATERIAL STORAGE

1. TOTAL REQUIREMENT: 13,600 GSF.

2. SUMMARY OF REQUIREMENT:

a.	General Support Storage	9,615 GSF
b.	Vehicle & Equipment Storage	3,960 GSF
c.	Total Storage Requirement	13,575 GSF
d.	Total Requirement Rounded	13,600 GSF

3. PERSONNEL LOADING:

CATEGORY	OFF	ENL	CIV	TOTAL
NATTC STAFF	14	198	15	227
MATSG STAFF	4	26	0	30
STUDENTS	8	396	0	404
TOTALS	**26**	**620**	**15**	**661**

4. DISCUSSION: Storage facilities are required for various instructional materials, equipments, and vehicles in support of training. The applied training mission of this activity generates a storage requirement of 10 NSF per student to store instructional materials and equipment. Also, additional space is required to store training support vehicles. This additional space is justified using allowances contained in Table 440D-1 of reference (a).

5. CALCULATION OF STORAGE REQUIREMENT:

GENERAL SUPPORT REQUIREMENT = STUDENT AOB X 10 NSF/STUDENT
= 404 STUDENTS X 10 NSF/STUDENT
= 4,040 NSF X 2.38 (Net-to-gross)
= 9,615 GSF

* Net-to-gross factor from Table 440B-3 of reference (a).

STORAGE REQUIREMENT FOR TRAINING VEHICLES AND MOBILE EQUIPMENT:

DESCRIPTION	PIECES X ALLOWANCE	REQUIREMENT
Yellow Gear	6 x 220	= 1,320 GSF
Crash Crane	1 x 330	= 330 GSF
Tractor	1 x 330	= 330 GSF
Forklift	3 x 220	= 660 GSF
Fire/Crash Truck	4 x 330	= 1,320 GSF
	TOTAL	= **3,960 GSF**

IV. CATEGORY CODE 211-05 MAINTENANCE HANGAR - OH

1. TOTAL REQUIREMENT: 10,290 GSF.

2. DISCUSSION AND CALCULATION: Hangar space is required to house the PR School's aircraft which is used for actual inflight training in parachute jumping. The plane used is an S-2 with a wingspan of 73.0' and a length of 43.5'. Allowing a 20.0' perimeter all around the plane for maintenance, plus 365 square feet for minimal office and toilet facilities, and allowing an addition 5% for building mechanical space, the total requirement is 10,290 GSF.

V. CATEGORY CODE 610-10 ADMINISTRATIVE OFFICE

1. TOTAL REQUIREMENTS: 4,950 GSF.

2. PERSONNEL LOADING:

CATEGORY	OFF	ENL	CIV	TOTAL
NATTC BASE OPS	5	17	5	27
MATSG BASE OPS	2	4	0	6
TOTALS	**7**	**21**	**5**	**33**

3. DISCUSSION AND CALCULATION: Administrative office space is required for the Commanding Officer, Naval Air Technical Training Center, Anywhere, USA, and staff, as well as other tenant commands. From manpower authorization reports, there are a total of 33 people who require office space. These 33 people consist of 27 from NATTC and 6 from MATSG. From reference (a), the per-person allowance for administrative office space is 150 GSF. Therefore, the total requirement for administrative office (Category Code 610-10) is 150 GSF/PN x 33 MN = 4,950 GSF.

VI. CATEGORY CODE 610-77 ADMINISTRATIVE STORAGE

1. TOTAL REQUIREMENT: 250 GSF

2. DISCUSSION AND CALCULATION: There is currently no criteria for this space in NAVFAC P-80. Generally, based on experience, the requirement is calculated by taking 5% of the total 610-10 requirement. Therefore, the administrative storage requirement is 4,950 SF x 0.05 = 250 GSF.